IHS Best Practice Model
Type 2 Diabetes in Youth

Why is this important?

Type 2 diabetes, a disease that usually develops in adulthood, is occurring with increasing frequency in children and young adults. American Indian/Alaska Native young people seem especially vulnerable. A recent HIS study showed that between 1991 to 1997, diabetes increased by 32 percent in AI/AN youth age 15 to 19 years, 36 percent in youths age 20 to 24 years, and 28 percent in young adults age 25 to 34 years. Type 2 diabetes has been reported in American Indian children as young as 4 years. Risk factors for type 2 diabetes in children include:

- Obesity or being overweight; inactivity;
- A family history of type 2 diabetes;
- Type 2 or gestational diabetes in the mother;
- Belonging to a certain ethnic group such as American Indian; and
- Signs of insulin resistance or conditions associated with insulin resistance such as hypertension, high blood lipids, or irregular menses.

In addition, breast feeding for at least 2 months has been shown to be protective against the later development of diabetes.

What is the prevalence of type 2 diabetes among young people in your community? Assessing your need for a program.

Examine your diabetes registry to determine the prevalence of youth-onset type 2 diabetes in your clinic population. How does it compare to HIS trends described above? To help you in deciding your need for a program focusing on type 2 diabetes in youth, as well as the direction of the program, you may wish to carry out a community needs assessment. Community needs can be determined by:

1. Community/family assessment.
2. Focus groups/talking circles.
3. Surveys.
4. Identifying community resources.
5. Identifying stakeholders.
6. Identifying potential barriers/obstacles.
7. Assessing for readiness for change.

Before deciding to initiate a program, you may also wish to review existing scientific and best practice models and literature on managing diabetes and obesity and diabetes prevention. The charts (on next page) summarize the information available in these areas.

Managing Type 2 Diabetes

Scientific Models

	Literature Present*
• No Diabetes Management models for children	

*Judgment on availability of information

Best Practice

	Literature Present*
• Guidelines for managing Type 2 Diabetes in Children and Adolescents	Present in Draft form
• Teen Clinics	

*Judgment on availability of information

Managing Obesity

Scientific Models

	Literature Present*
• Guidelines for managing obesity in Adults	Present

*Judgment on availability of information

Best Practice

	Literature Present*
• Expert panel on childhood obesity	Pediatrics 1998;102:E29
• Teen Clinics	
• Mental health aspects of Obesity	

*Judgment on availability of information

Preventing Diabetes

Scientific Models

	Literature Present*
• Pathways Project	American Society for Clinical Nutrition 1999;69(supl):796-802S
• School based curriculums for healthy living	Present
• Bright Futures	Present

*Judgment on availability of information

Best Practice

	Literature Present*
• Defining prevention population	Present
• Identifying screening protocols	Present
• Identifying at risk children	Annals of Internal Medicine 2000;133(3):176-182

• Tracking at risk children	
• Wellness camps	
• Garden projects	
• Training the trainer – targeting staff involved with children	Something in Pathways project, other articles
• Breastfeeding	Lancet 1997, other articles
• Mental Health aspects of obesity	
• Family based interventions	
• Incentive driven health promotion activities	
• Gestational Diabetes	
• Development & dissemination of awareness messages	
• School population based risk factor behavior reduction – e.g. decreasing soda pop, improving school lunch program, increasing physical activity	Present
• Community collaborations on health promotion – e.g. television watching, fitness center	Present
• Involving elders and other care givers	
• Animal/Pet interactions	
• Peer education models: STOP Diabetes	Present

*Judgment on availability of information

What type of program should you consider?

Best practice models for programs concerned with type 2 diabetes in youth include programs focusing on increasing awareness of the problem; screening programs; and community, school, and medical/lifestyle interventions. The following are examples of activities included in each of these areas:

Awareness

1. Training the trainer – targeting staff involved with children.
2. Breastfeeding.
3. Gestational diabetes.
4. Development & dissemination of awareness messages.
5. Identifying target population.

Screening

1. Identifying screening protocols.
2. Identifying at-risk children, stratifying risk.
3. Tracking at risk children.

Interventions

1. Pathways Project.
2. School-based curriculums for healthy living.
3. Bright Futures.
4. Mental health aspects of obesity.
5. Guidelines for managing obesity in adults.
6. Guidelines for managing type 2 diabetes in children and adolescents.
7. Teen clinics.
8. Wellness camps.
9. Garden projects.
10. Family-based interventions.
11. Incentive-driven health promotion activities.
12. School population based risk factor behavior reduction; for example, decreasing soda pop, improving school lunch programs, and increasing physical activity.
13. Community collaborations on health promotion; for example, fitness center and improving senior meals.

What are suggested goals and activities for your program? How should you evaluate these activities?

In the area of awareness, suggested goals are:

1. Increase awareness and knowledge about the definition of obesity.
2. Increase knowledge about how obesity affects health.
3. Increase knowledge about the risk factors for diabetes in children, including a family history of diabetes, in utero exposure to diabetes, AN, and obesity.
4. Foster community collaboration and consensus building.
5. Increase percentage of enrollment in intervention activities. It is recommended that you use a percent of your target population to quantify, after establishing a baseline.

Suggested activities:

1. Develop training programs for different target audiences, including:
    - community
    - providers
    - individuals
    - families
    - trainers.
2. Develop/identify educational materials.
3. Disseminate educational materials.
4. Develop measurement tools such as pretest and posttest knowledge questionnaires.

Suggested evaluation criteria include:

1. Roles of participants
    - gender/age group.
2. Number of participants.
3. F/U surveys on impact of intervention through pretest and posttest knowledge tests.
4. Actions taken based on intervention results.

5. Outcome measures; for example weight loss, lowered lipid levels, normalization and maintenance of blood sugar values.
6. Participation in screening/intervention activities.
7. Changes in behavior, including
    - increased activity
    - improved healthy eating.
8. Any change in intervention activities.

Elements to consider in developing a screening program include:

1. What percentage of young people in community programs and schools will be screened for diabetes risk factors and how often will they be screened?
2. Do you want to develop registry for tracking high-risk children?
3. What percentage of children seen by medical provider for F/U **(???)** will be screened?
4. What percentage of children in your clinic will be re-screened for diabetes risk factors?

Suggested activities include:

1. Develop screening protocol with input from all stakeholders.
2. Develop referral process for children identified as being at risk.
3. Develop a database system with querying capabilities for case management and reporting.

What kind of interventions should you consider?

The overall goal for preventing and managing diabetes and obesity in children is implementing behavioral lifestyle changes. Scientific model is the Transtheoretical Model of Behavior Change by Prochasta & DeClementi.

The following are Best Practice examples for interventions concerned with medical, psychosocial, and environmental activities:

Medical: The goal of medical interventions is to improve metabolic indicators by maintaining normal blood glucose, controlling lipids, lowering body mass index, improving fitness levels, controlling blood pressure, and correcting other signs of insulin resistance such as menstrual irregularity, lack of fertility, acne, and hyperandroginism. Suggested inventions include:

- Teen clinics
- Guidelines for managing type 2 diabetes in children and adolescents
- Implementing diabetes management guidelines.

Psychosocial: The goal of psychosocial interventions should be to identify, support, and provide tools for positive behavior change through assessment of families and individuals, fostering healthy peer activities, and increasing peer and family support and involvement. Possible interventions include:

- Mental health evaluation and evaluation/assessment, with referral as indicated
- Family-based interventions
- Wellness camps
- Animal/pet interactions, for example horseback riding.

Environmental: The goal of environmental interventions is to improve access to or the availability of opportunities for physical activities and healthy eating choices by reducing obstacles to physical activity and facilitating an environment that will stimulate increased activity and promote healthy eating. Best practice examples include:

- Pathways/school-based curriculum
- Bright Futures
- Garden projects
- Incentive-driven health promotion activities
- Community/school-based risk factor behavior reduction activities.

Who are your target populations?

Suggested target populations by age groups include:

- Prenatal/postpartum women
- Women of child-bearing age
- Providers
- Families
- Service agencies such as schools, stores, etc.
- Caregivers such as day care center workers, school/community cooks
- Tribal leaders

How should you evaluate your program?

Minimum data elements to include in your program are:

- Risk assessment history
- Breastfeeding as an infant
- Physical activity levels
- Dietary habits
- Youth risk behaviors
- Sedentary behaviors
- TV watching
- User population by age/gender breakdown
- Diabetes prevalence
- Obesity prevalence
- Heights/weights of all children in user population.

Program/progress indicators include:

- Timeline for milestones (defined by program)

- Target population identified
- Baseline assessment completed
- Staff hiring
- Progress towards goals
- Community feedback – ongoing reports back to the community
- Were identified barriers addressed?
- Review of Budget – cost overruns, carryover?
- Progress towards goals, including data analysis

What issues should you consider in writing your proposal

1. Have you described collaborations with other existing programs; for example, MOA's?
2. Are your goals realistic (achievable) and measureable?
3. Is there a baseline assessment in place?
4. What kind of measurement tools will be used?
5. Is staffing adequate to meet your program goals?
6. Is your target population identified?
7. Is your program sustainable?
8. How will data analysis be performed?
9. Have reporting requirements been addressed?
10. Will your program leave a legacy for the community?
11. Does your proposed budget realistically support program activities?
12. Have you identified existing human and material resources?
13. Is your proposal based on scientific/best practices?